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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,823	02/11/2002	Densen Cao	5061.18 P	4206

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EXAMINER

LEWIS, RALPH A

ART UNIT	PAPER NUMBER
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3732

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,823

Applicant(s)

CAO, DENSEN

Examiner

Ralph A. Lewis

Art Unit

3732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,11-13 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,11-13 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Rejections based on 35 U.S.C. 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 5, 6, 11-13 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In independent claims 1, 6, and 13, the limitation that LED chip(s) be powered with a pulsed current (repeatedly from a power level I to zero current input) but that the light output from the chip(s) maintain a non-pulsed light output is unclear to the examiner. The originally filed specification (paragraph [120]) provides little insight. Originally filed dependent claim 4 indicated that the light output was pulsed while originally filed dependent claim 3 indicated that the "light output resembles continuous wave light output." It is this examiner's understanding of LED's that when there is no power (i.e. "no current input") supplied to the LED, then there is no light being produced by the LED. The limitation of original claim 3 that the "light output resembles continuous wave light output," was understood to mean that the LED is pulsed so rapidly that it appears to the naked eye to have a continuous output, but that it does not in fact have continuous light output. Applicant's morphing of the limitation of from "resembles" to an unqualified requirement is not understood, and probably not supported by the originally filed papers or the factual operation of LED's.

Additionally, claim 18 is identical to claim 5. The repetition of claims is confusing and not understood.

Rejections based on Prior Art

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (WO 99/16136).

Mills et al disclose a method of curing dental material with a curing light wherein the dental curing light (page 1, second paragraph) is comprised of a hand held wand (Figure 5) having an elongated heat sink 45, 50, 51, having a distal end surface serving as a mounting platform on which primary heat sink 48 is mounted, and covered light emitting semiconductors 43 mounted to the primary heat sink. The Mills et al curing light may be operated in a pulsed mode (see page 16). For the LEDs to pulsed it is obvious to the ordinarily skilled artisan that the LEDs be operated with pulsed current.

In response to the present rejection applicant amended the claims to require that the LED chip(s) be powered with a pulsed current (repeatedly from a power level I to zero current input) but that the light output from the chip(s) maintain a non-pulsed light output. The examiner is somewhat unsure of what to make of this limitation and the

originally filed specification (paragraph [120]) provides little insight. Originally filed dependent claim 4 indicated that the light output was pulsed while originally filed dependent claim 3 indicated that the "light output resembles continuous wave light output." It is this examiner's understanding of LED's that when there is no power (i.e. "no current input") supplied to the LED, then there is no light being produced by the LED. The limitation of original claim 3 that the "light output resembles continuous wave light output," is understood to mean that the LED is pulsed so rapidly that it appears to the naked eye to have a continuous output, but that it does not in fact have continuous light output. The examiner interprets the "while maintaining non-pulsed light output from said LED chip" to mean that the light output appears to be nonpulsed. Moreover, the examiner is of the position that the ordinarily skilled artisan would have found the pulsing of the light output of the Mills et al dental curing light at different rates, including rates not apparent to the human eye, to have been obvious as a matter of routine in carrying out the "pulsing" disclosed by Mills et al.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mills (WO 99/16136) in view of Doiron et al (5,698,866).

Mills discloses a method of curing dental material with a curing light wherein the dental curing light (page 1, second paragraph) is comprised of a hand held wand (Figure 5) having an elongated heat sink 45, 50, 51, having a distal end surface serving as a mounting platform on which primary heat sink 48 is mounted, and covered light emitting semiconductors 43 mounted to the primary heat sink. The Mills curing light

may be operated in a pulsed mode (see page 16). For the LEDs to pulsed it is inherent that they be operated with pulsed current. In Mills the LEDs are mounted directly on a flat heat sink 48. Doiron et al, however, teach that an improvement over mounting diodes on a flat surface (Figures 9 and 10) is mounting them in a well (Figures 11 and 12) formed on the heat sink so that more light from the LEDs is reflected forward in the desired direction. To have mounted the Mills LEDs in wells as taught by Doiron et al so that more light is reflected forward in the desired direction would have been obvious to one of ordinary skill in the art.

Allowable Subject Matter

Claims 5 and 12 would be allowable if rewritten in independent form to include all of the limitations of the claims from which they depend and to overcome the rejections based on 35 U.S.C. 112, second paragraph above.

Action Made Final

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication should be directed to **Ralph Lewis** at telephone number **(703) 308-0770**. Fax (703) 872-9302. The examiner works a compressed work schedule and is unavailable every other Friday. The examiner's supervisor, Kevin Shaver, can be reached at (703) 308-2582.

R. Lewis
May 31, 2005


Ralph A. Lewis
Primary Examiner
AU 3732